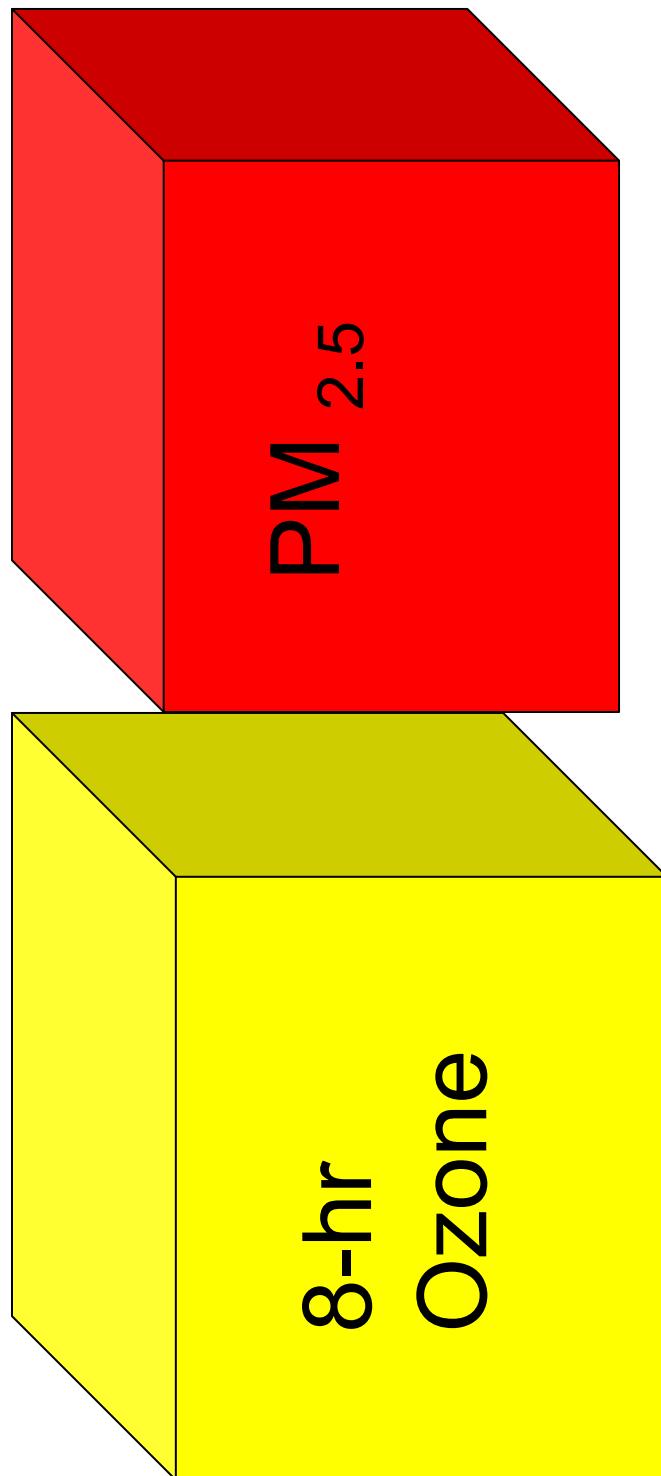


# Michigan's Air Quality - Meeting the Clean Air Challenges

G. Vinson Hellwig  
Chief, Air Quality Division  
Michigan Department of Environmental Quality

Michigan Clean Fleet Conference  
March 22, 2006

# Newest National Ambient Air Quality Standards (NAAQS)



# OZONE VS. PM2.5

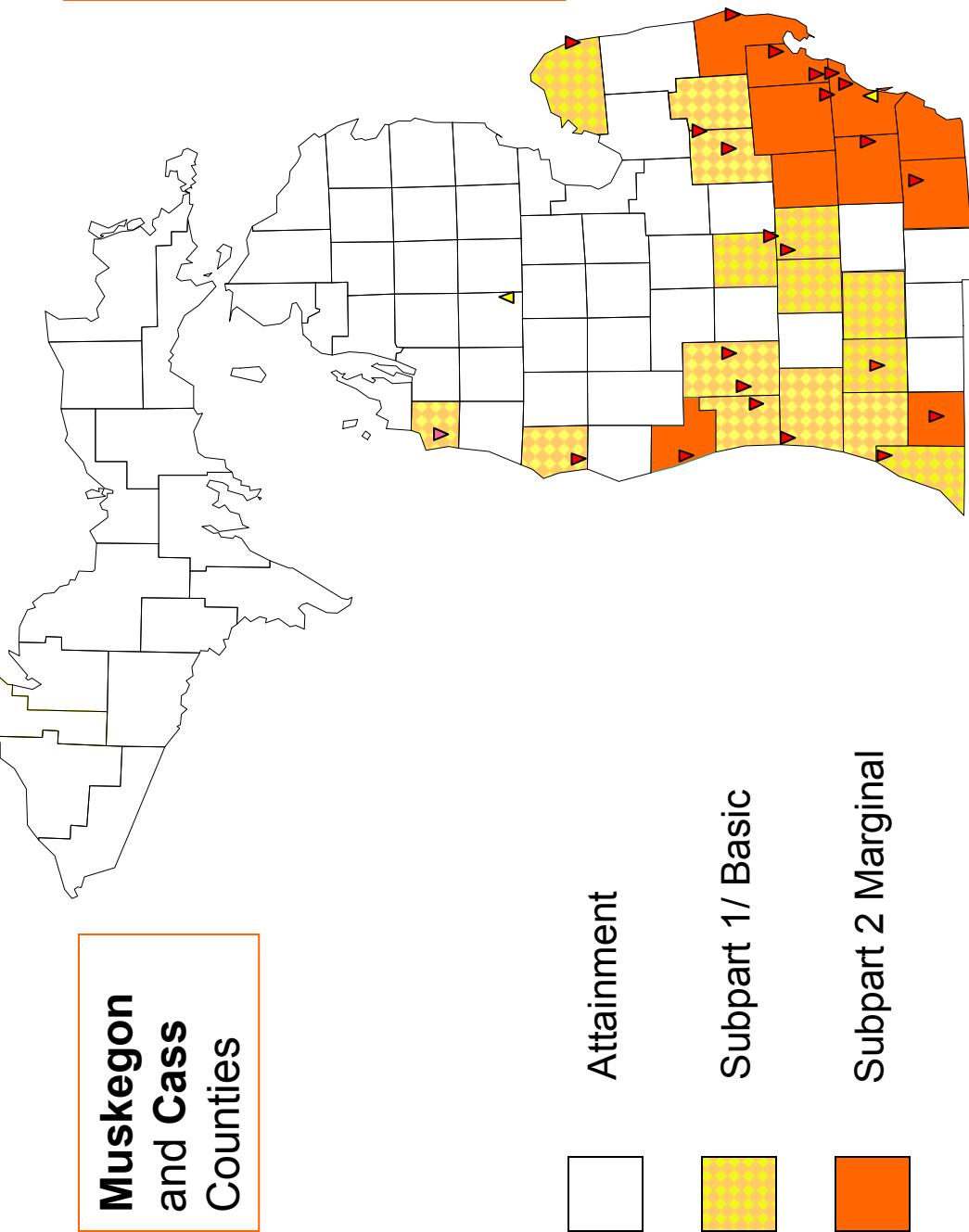
- Ozone is a summertime problem; PM2.5 is a 12 month problem
- Ozone violations are more widespread than PM2.5 (only 4 Wayne co. monitors violate PM2.5 standard)
- NO<sub>x</sub> + VOC = Ozone;
- PM2.5 is NO<sub>x</sub> + NH<sub>3</sub>, SO<sub>2</sub> + NH<sub>3</sub>, organics, elemental carbon, and soil

# 8-hour Ozone Nonattainment areas September 15, 2004

Muskegon  
and Cass  
Counties

**SE Michigan:**

St. Clair  
Livingston  
Monroe  
Lenawee  
Oakland  
Washtenaw  
Wayne  
Macomb

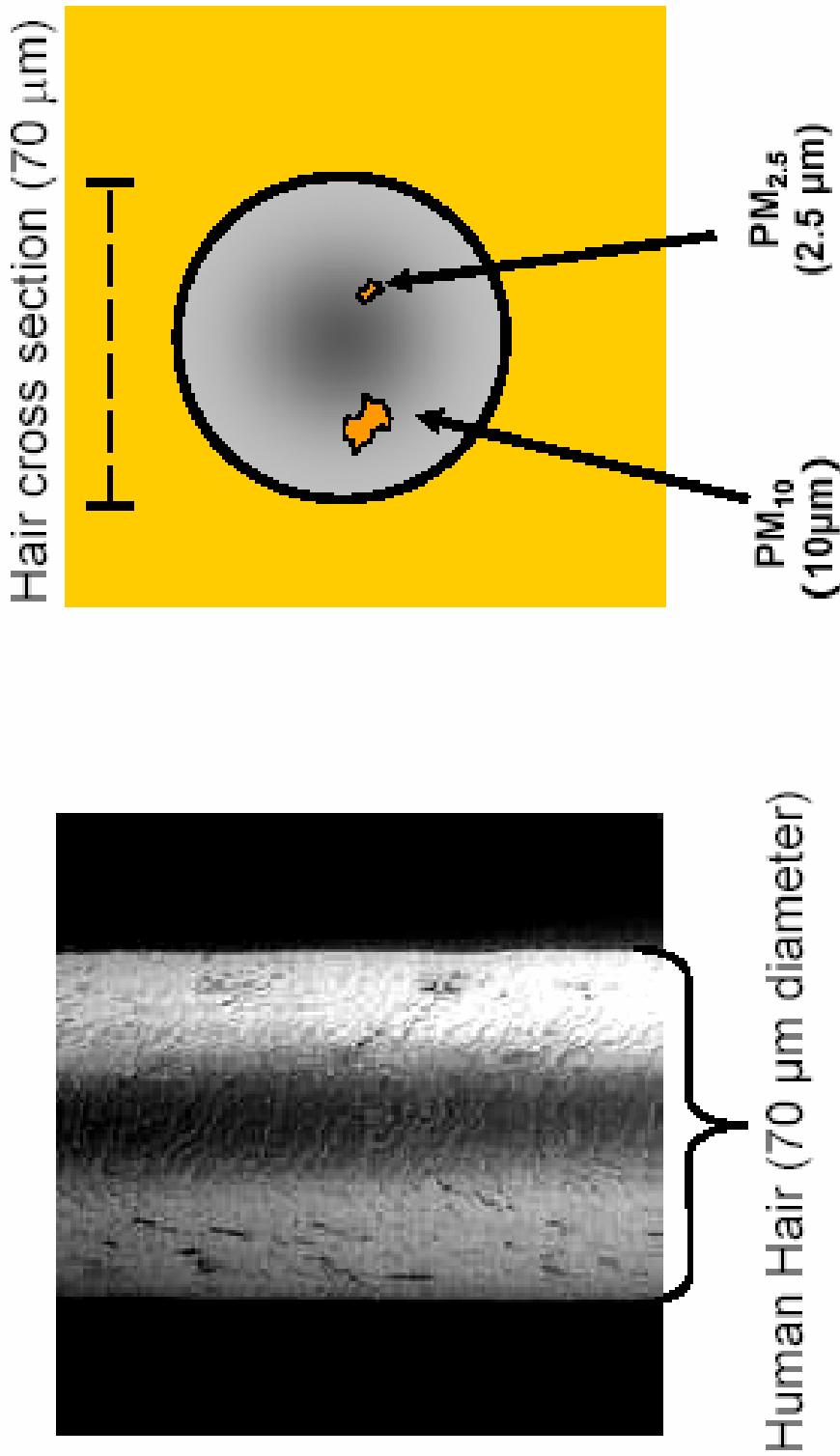


# Control Strategy Measures Considered and Selected for Southeast Michigan

- Lower gasoline vapor pressure (7.8 to 7.0)
- Reduced emissions from, cement manufacturing, consumer/commercial products, and auto body refinishing
- Motor vehicle inspection/maintenance
- Voluntary measures

# Particulate Matter: What is It?

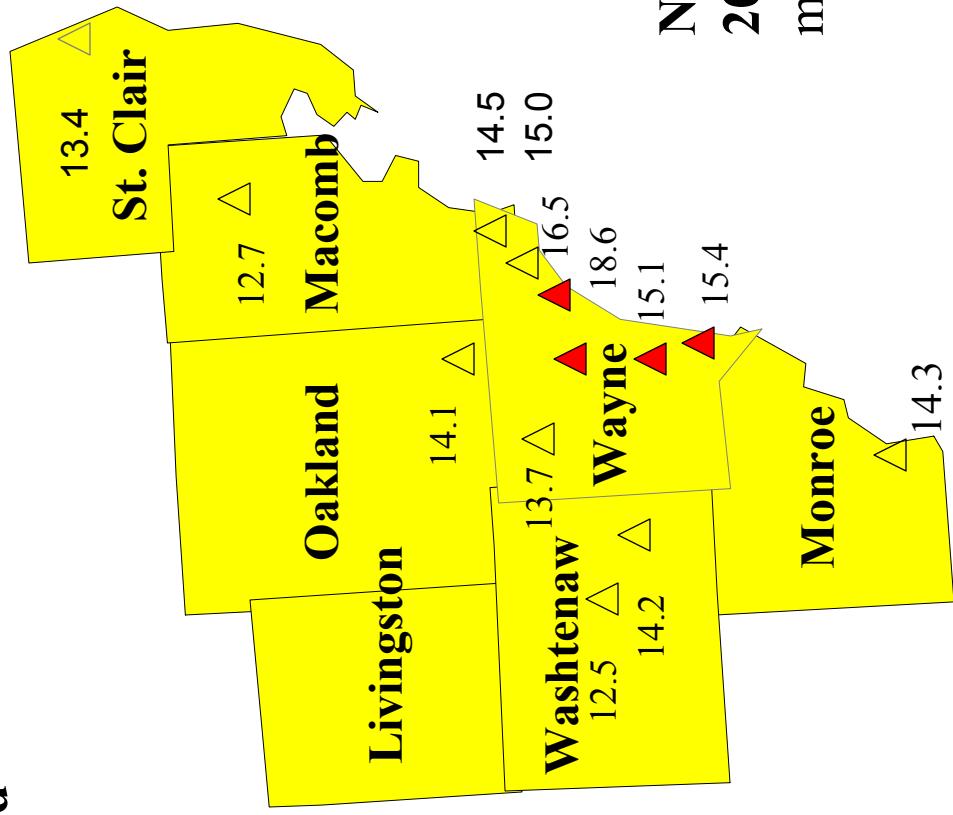
**A complex mixture of extremely small particles and liquid droplets**



# PM 2.5 Nonattainment Area 3-year Annual Averages

▲ Monitor < standard

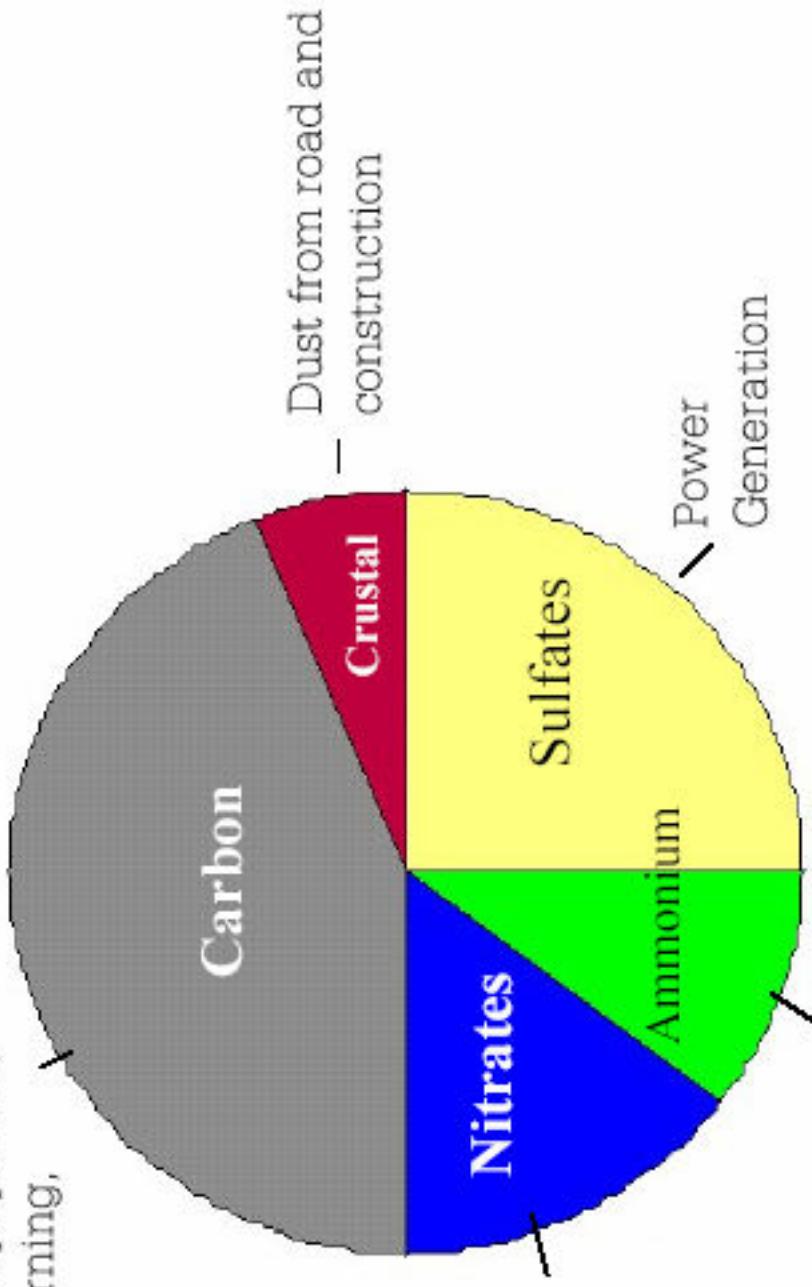
▼ Monitor > standard



Note: Based on  
**2002 - 2004**  
monitoring data

## Automobiles, power generation, and other sources contribute to fine particle levels

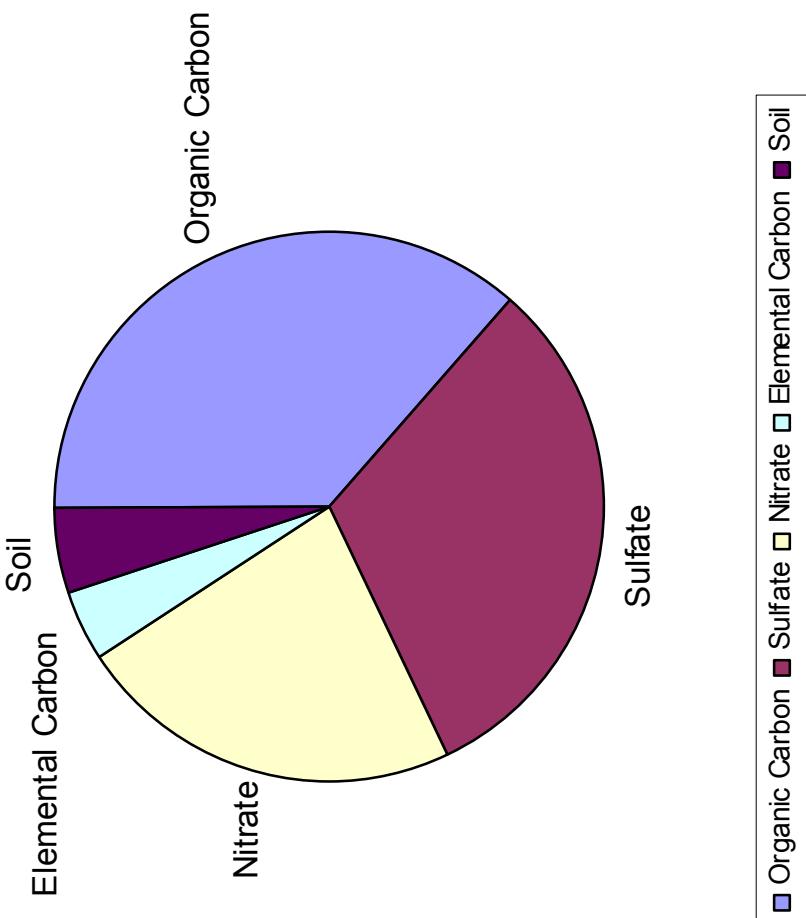
Cars, trucks, heavy equipment, wild fires, waste burning, and biogenics



Cars, trucks, and power generation

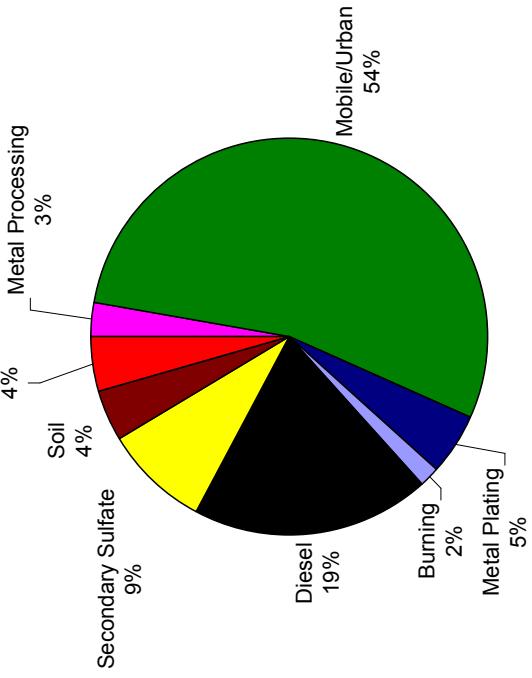
Fertilizers and Animal Feed Operations  
(in combination with NOx/SOx sources)

# PM 2.5 Speciation Detroit

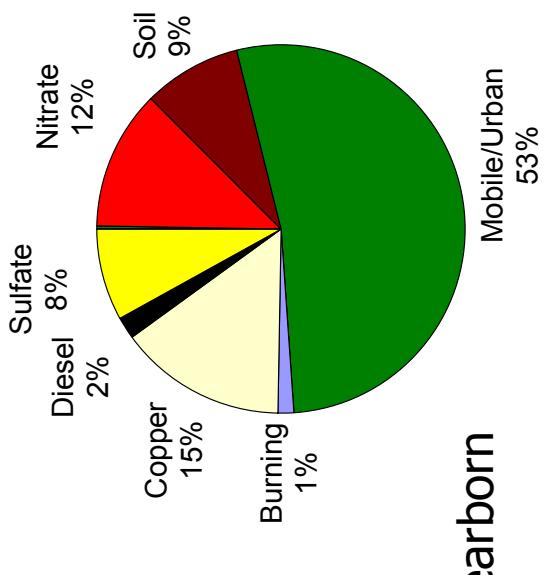


# Detroit PMF Results: OM

- Mobile/urban factor is ~ 50% of OM at both sites
- Diesel at Allen Park is a large amount of OM

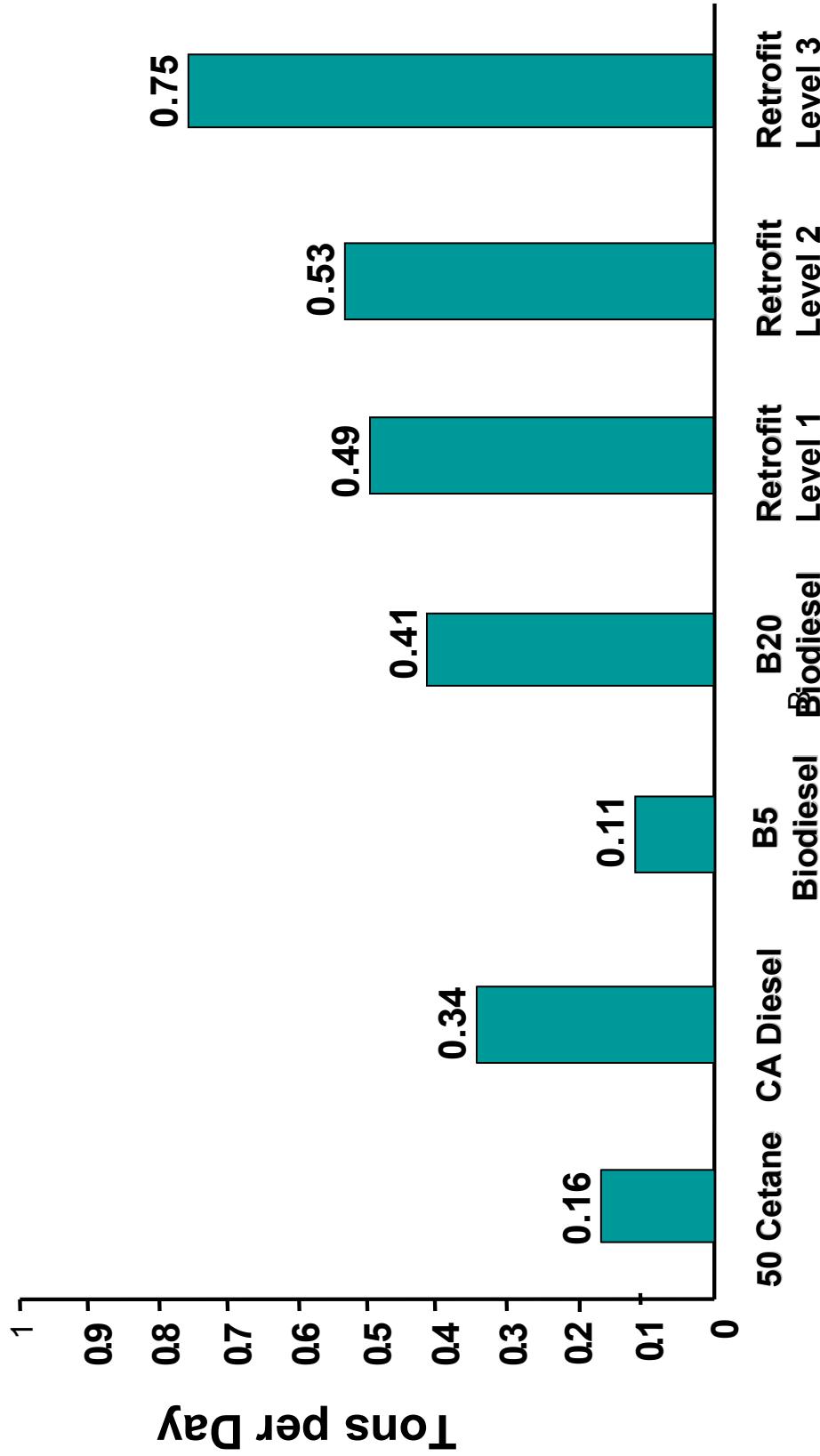


Allen Park



Dearborn

# 2007 Benefits from Various Diesel Options: Fine Particulates



- There is increasing concern about diesel exhaust from the general public
- The Ozone and PM nonattainment problems need to be resolved and reduced diesel emissions can help with both
- New diesel emission and fuel standards will improve air quality, but since new vehicles and engines are purchased gradually over time, voluntary retrofits and practices can help make a difference in the immediate future.